TERRESTRIAL COMMUNITY TYPES OF GREATEST CONSERVATION NEED

All of the information in this section is taken directly from the CFWCS (FWP 2006), Montana Field Guide (MNHP 2013a; MNHP and FWP 2013a), the SOC list (MNHP and FWP 2013b), and recommendations from the SWAP Technical Teams (personal communications). Any additional citations are listed.

Conservation at the community type level provides the potential to leverage conservation resources to benefit large numbers of species. Community types also provide a way to associate numerous species through common habitat requirements. These communities often face similar conservation concerns that can be addressed simultaneously. The terrestrial community types in this section have been identified as Tier I CTGCN, and efforts should be made to address the conservation actions identified for these community types across an Ecoregion regardless if they fall within a Focal Area (Appendices J-M). Focal Areas identify geographic areas that would be the highest priority to focus conservation efforts to conserve CTGCN and SGCN.

Twelve of the 21 unique terrestrial community types across the seven Ecoregions were identified as Tier I. Please note that community types may be found in Ecoregions other than what is depicted on the maps. Only locations where the community types are considered Tier I are displayed and addressed (see Terrestrial Community Types under Methods).

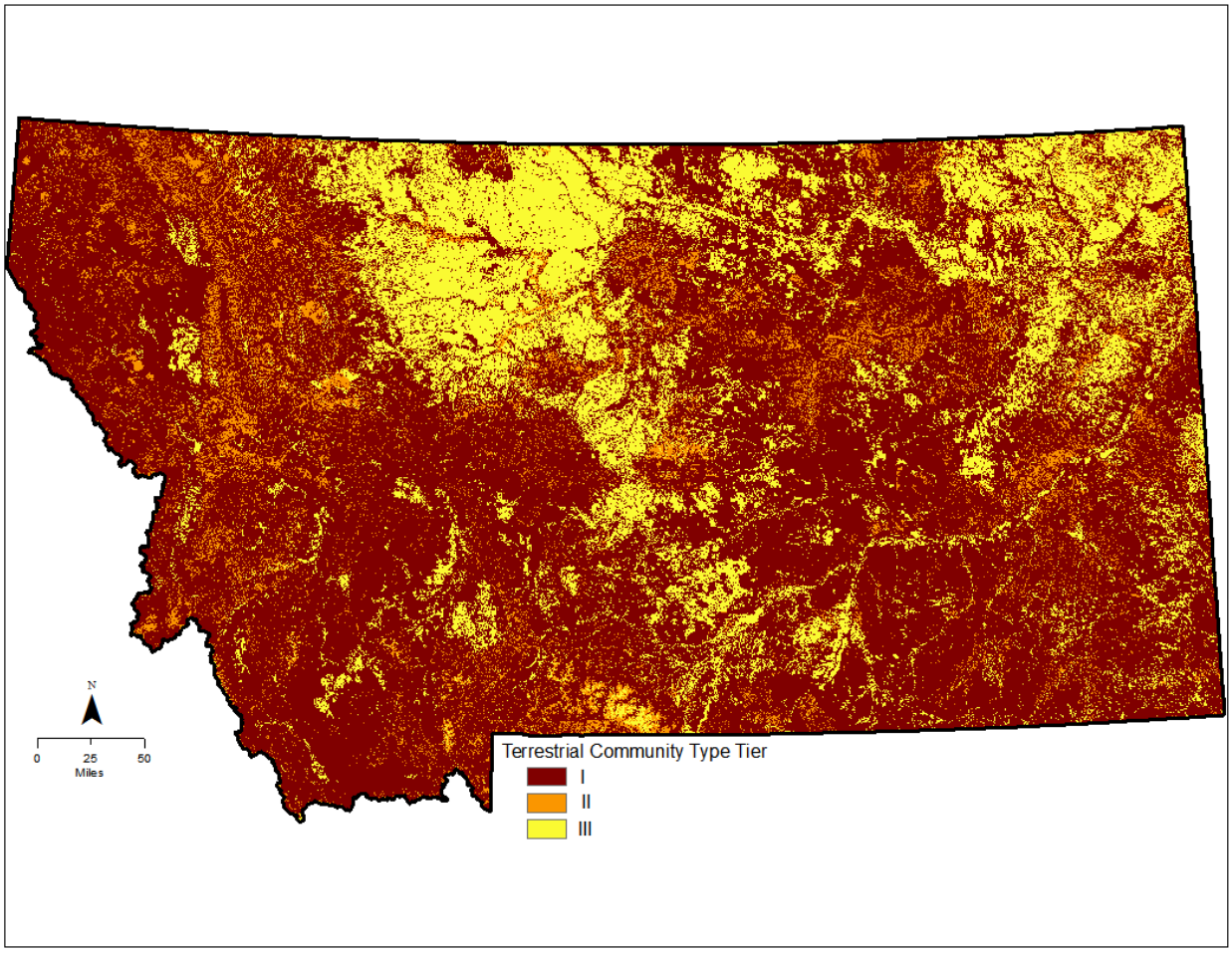

Figure 8. Overall terrestrial community type tiers

FLOODPLAIN AND RIPARIAN **5,059 miles^2**
All Ecoregions **3.4% landcover**

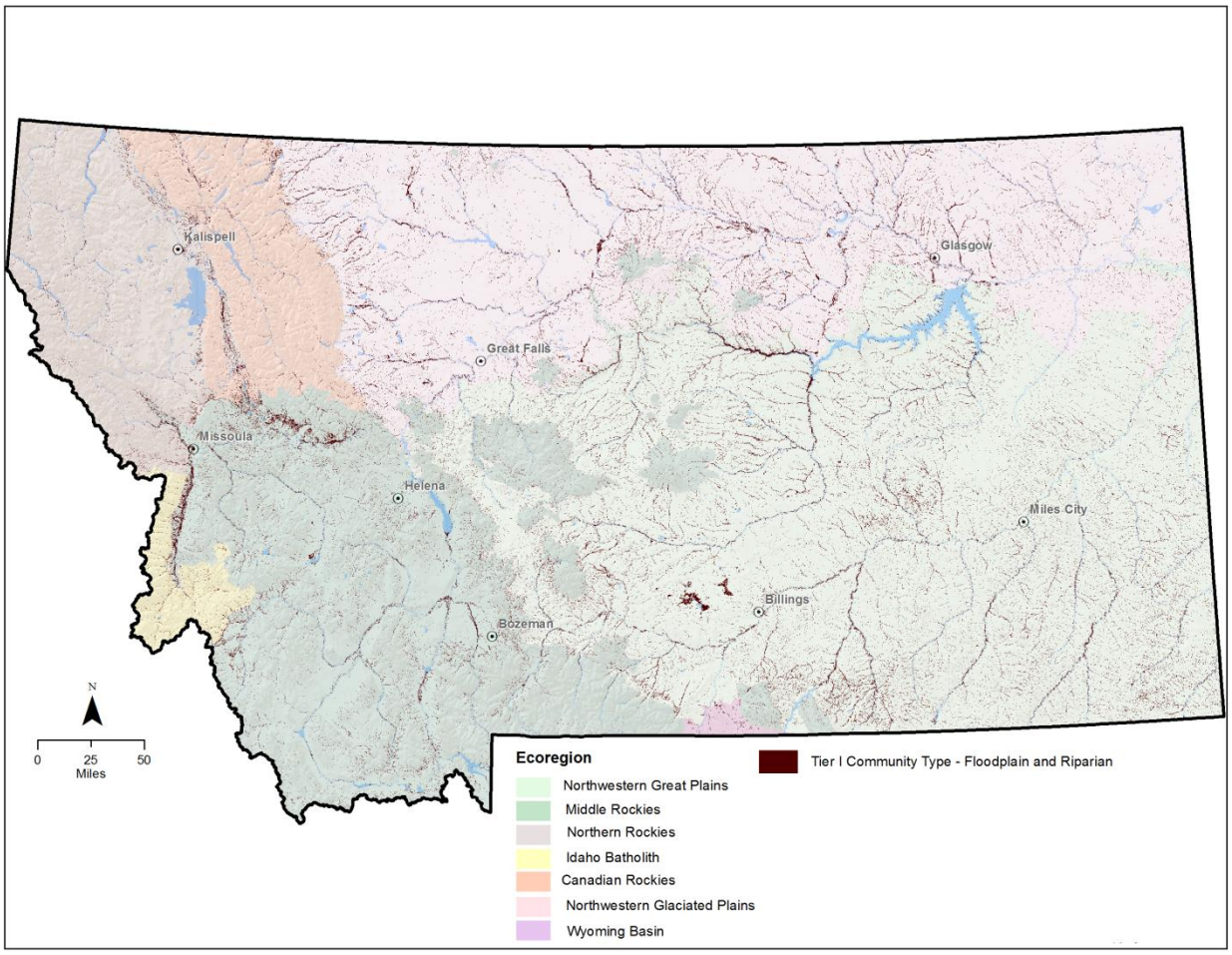

Figure 9. Distribution of Floodplain and Riparian Community Type

This community type is found throughout Montana, adjacent or immediately upland from rivers, and greatly varies in species composition, elevation, soil type, protections, and threats.

Due to the complexity of Floodplain and Riparian systems, each site should be assessed with a site specific approach (e.g., objective, size). Often multiple tools will be needed in combination to reach the specific objectives and to protect, enhance, create, restore and/or improve the functionality of the floodplain and riparian system.

Completing the National Wetland Inventory and riparian habitat mapping would help guide management of this community type.

Associated SGCN

Amphibians
Coeur d'Alene Salamander
Great Plains Toad
Idaho Giant Salamander
Northern Leopard Frog
Plains Spadefoot
Western Toad

Birds
Alder Flycatcher
American Bittern
Baird's Sparrow
Black-backed Woodpecker
Black-billed Cuckoo
Black-crowned Night-Heron
Black-necked Stilt
Bobolink
Boreal Chickadee
Brown Creeper
Burrowing Owl
Cassin's Finch
Clark's Nutcracker
Common Tern
Evening Grosbeak
Ferruginous Hawk
Flammulated Owl
Franklin's Gull
Golden Eagle
Great Blue Heron
Great Gray Owl
Greater Sage-Grouse
Green-tailed Towhee
Harlequin Duck
Le Conte's Sparrow
Least Tern
Lewis's Woodpecker
Loggerhead Shrike
Mountain Plover
Nelson's Sharp-tailed Sparrow
Northern Goshawk
Northern Hawk Owl
Peregrine Falcon
Pileated Woodpecker
Pinyon Jay
Piping Plover
Red-headed Woodpecker
Sharp-tailed Grouse
Varied Thrush
Veery
White-faced Ibis
Yellow-billed Cuckoo

Mammals
Arctic Shrew
Bison
Canada Lynx
Dwarf Shrew
Fisher
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Northern Bog Lemming
Northern Short-tailed Shrew
Pallid Bat
Preble's Shrew
Pygmy Shrew
Spotted Bat
Townsend's Big-eared Bat
Wolverine

Reptiles
Greater Short-horned Lizard
Milksnake
Northern Alligator Lizard
Smooth Greensnake
Snapping Turtle
Spiny Softshell
Western Hog-nosed Snake
Western Skink

OPEN WATER **1,294 miles^2**
All Ecoregions **0.9% landcover**

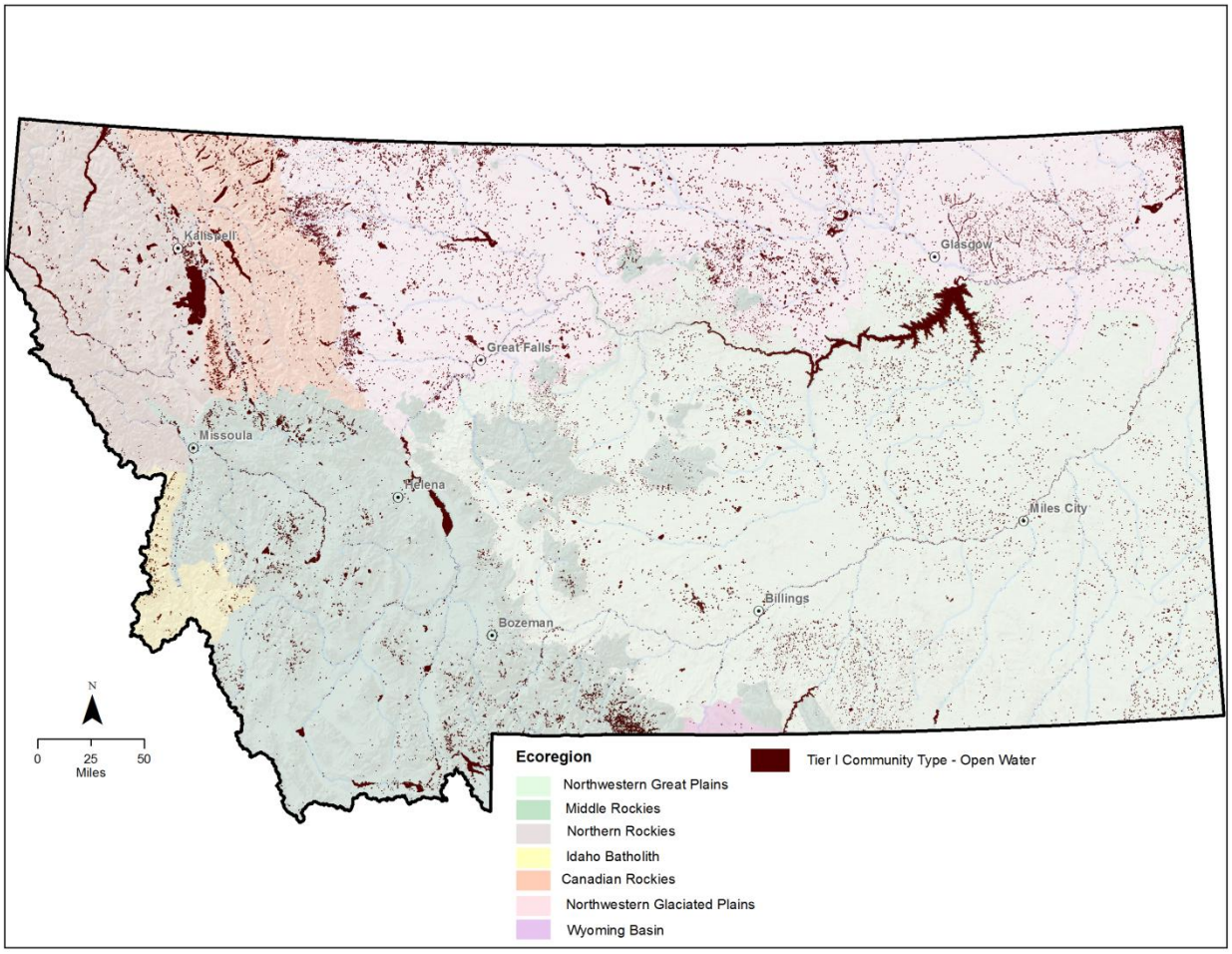

Figure 10. Distribution of Open Water Community Type

The Open Water community type includes natural and manmade lakes, reservoirs, large ponds, and the surface areas of rivers. Medium to large rivers in this community type are generally found in low-lying valley bottoms. All of these water features generally have less than 25% vegetation cover or bare soil (e.g., sandbars). The water is still or flowing and is absent of emergent vegetation except around the edges. Geysers and Hot Springs fall under the Open Water community type as well, however less than one square mile is classified as Geysers and Hot Springs in the 2013 Montana Land Cover layers. Because of the small area occupied, and because no SGCN is dependent on Geysers and Hot Springs, they are not considered in this discussion of Open Water.

Due to the complexity of Open Water systems, each site should be assessed with a site specific approach (e.g., objective, size). Often multiple tools will be needed in combination to reach the specific objectives and to protect, enhance, create, restore and/or improve the functionality of the open water system.

Associated SGCN

Amphibians
Great Plains Toad
Northern Leopard Frog
Plains Spadefoot
Western Toad

Birds
American Bittern
American White Pelican
Black Swift
Black Tern
Black-crowned Night-Heron
Black-necked Stilt
Caspian Tern
Clark's Grebe
Common Loon
Common Tern
Forster's Tern
Franklin's Gull
Harlequin Duck
Horned Grebe
Least Tern
Peregrine Falcon
Piping Plover
Sedge Wren
Trumpeter Swan
White-faced Ibis

Mammals
Hoary Bat
Little Brown Myotis
Spotted Bat
Townsend's Big-eared Bat

Reptiles
Smooth Greensnake
Snapping Turtle
Spiny Softshell

WETLANDS
All Ecoregions

835 miles^2
0.6% landcover

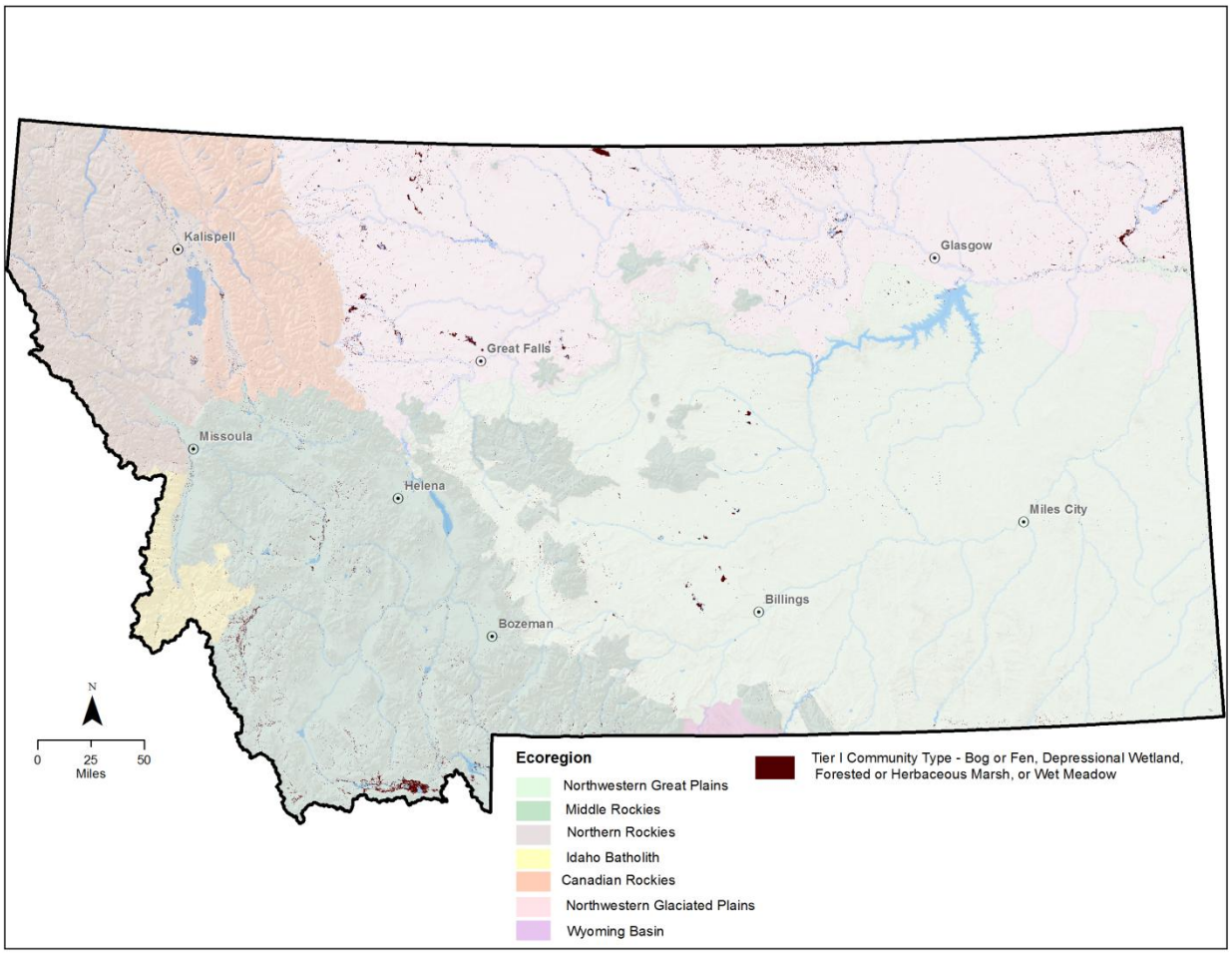

Figure 11. Distribution of Wetland Community Types

In Montana, there are five types of wetland community types: Bog and Fen, Forested Marsh, Herbaceous Marsh, Wet Meadow, and Depressional Wetland. While somewhat different in SGCN associations and locations in the state, most of these types are impacted by very similar threats, so they were addressed together.

Due to the complexity of wetland creation, enhancement, restoration, and the wide variety of wetland types, each site should be assessed with a site specific approach (e.g., objective, size). Often multiple tools will be needed in combination to reach the specific objectives and to protect, enhance, create, restore and/or improve the functionality of the wetland system.

Completing the National Wetland Inventory would help guide management of this community type.

Bog or Fen Associated SGCN

Amphibians
Western Toad

Birds
Alder Flycatcher
American Bittern
Clark's Nutcracker
Great Blue Heron
Great Gray Owl
Le Conte's Sparrow
Northern Hawk Owl
Varied Thrush

Mammals
Fisher
Fringed Myotis
Grizzly Bear
Little Brown Myotis
Northern Bog Lemming
Pygmy Shrew
Townsend's Big-eared Bat

Depressional Wetland Associated SGCN

Amphibians
Great Plains Toad
Northern Leopard Frog
Plains Spadefoot
Western Toad

Birds
Alder Flycatcher
American Bittern
American White Pelican
Baird's Sparrow
Black Tern
Black-crowned Night-Heron
Black-necked Stilt
Bobolink
Clark's Grebe
Common Tern
Evening Grosbeak
Ferruginous Hawk
Forster's Tern
Franklin's Gull
Great Blue Heron
Great Gray Owl
Greater Sage-Grouse
Horned Grebe
Le Conte's Sparrow
Loggerhead Shrike
Nelson's Sharp-tailed Sparrow
Northern Goshawk
Northern Hawk Owl
Peregrine Falcon
Piping Plover
Sedge Wren
Varied Thrush
White-faced Ibis

Mammals
Arctic Shrew
Fisher
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Northern Bog Lemming
Northern Short-tailed Shrew
Preble's Shrew
Pygmy Shrew
Spotted Bat
Townsend's Big-eared Bat

Reptiles
Smooth Greensnake
Western Hog-nosed Snake

Forested Marsh Associated SGCN

Amphibians
Western Toad

Birds
Alder Flycatcher
Brown Creeper
Great Blue Heron
Northern Goshawk
Northern Hawk Owl
Pileated Woodpecker
Varied Thrush

Mammals
Fisher
Fringed Myotis
Grizzly Bear
Little Brown Myotis
Northern Bog Lemming
Pygmy Shrew
Townsend's Big-eared Bat

Herbaceous Marsh Associated SGCN

Amphibians
Great Plains Toad
Northern Leopard Frog
Plains Spadefoot
Western Toad

Birds
American Bittern
American White Pelican
Black Tern
Black-crowned Night-Heron
Black-necked Stilt
Bobolink
Clark's Grebe
Common Loon
Common Tern
Forster's Tern
Franklin's Gull
Great Blue Heron
Horned Grebe
Le Conte's Sparrow
Nelson's Sharp-tailed Sparrow
Peregrine Falcon
Trumpeter Swan
White-faced Ibis

Mammals
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Northern Bog Lemming
Spotted Bat
Townsend's Big-eared Bat

Reptiles
Snapping Turtle
Western Hog-nosed Snake

Wet Meadow Associated SGCN

Amphibians
Northern Leopard Frog
Western Toad

Birds
American Bittern
Black Rosy-Finch
Black-crowned Night-Heron
Bobolink
Clark's Nutcracker
Ferruginous Hawk
Franklin's Gull
Gray-crowned Rosy-Finch
Great Blue Heron
Great Gray Owl
Green-tailed Towhee
Le Conte's Sparrow
Peregrine Falcon
Trumpeter Swan
White-faced Ibis

Mammals
Grizzly Bear
Hoary Bat
Little Brown Myotis
Northern Bog Lemming
Pygmy Shrew
Townsend's Big-eared Bat
Wolverine

ALPINE GRASSLAND AND SHRUBLAND & ALPINE SPARSE OR BARREN **441 miles^2**
Ecoregion: Canadian Rockies **0.3% landcover**

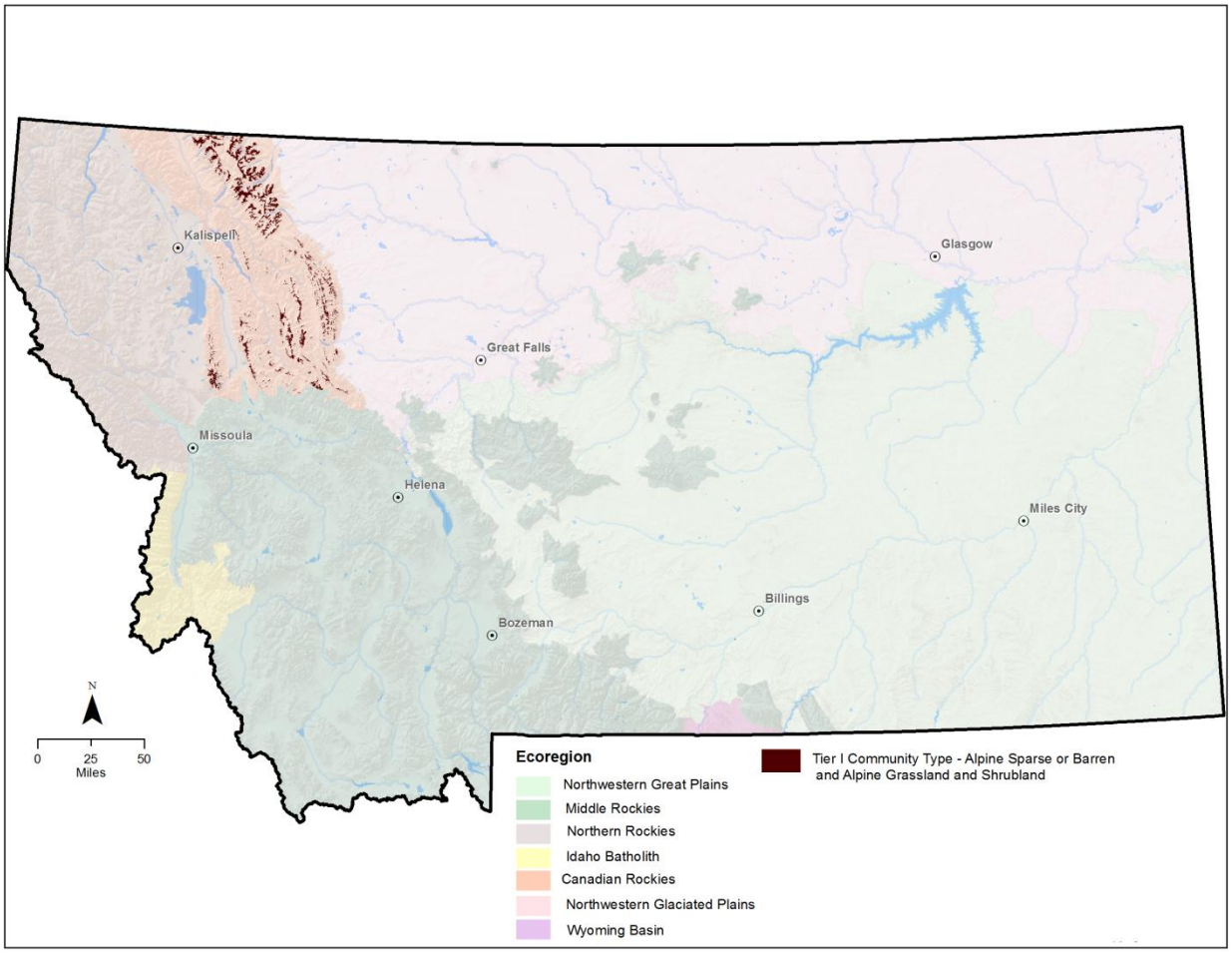

Figure 12. Distribution of Tier I Alpine Grassland and Shrubland & Alpine Sparse and Barren

The alpine community types are found at elevations above 6,600 feet in Montana. The vegetation cover is generally no more than 50%, and ranges in height from five inches (sedges, rushes, grasses, and forbs) to 1.6 feet (dwarf shrublands). At the highest elevations, above 7,500 feet, there is less vegetation, and ground cover varies from bedrock and scree to perennial ice. The entire area is characterized by a cold, short growing season with generally heavy snow accumulation except where the wind keeps it blown free.

This entire community is fragile and is easily impacted. Though it is slow to recover, the areas impacted by direct human contact are limited because of difficult accessibility. A bigger impact is the changing climate potentially resulting in less snow accumulation and earlier melting, although there are no strategies available through this SWAP to address this threat.

Associated SGCN

Birds
Black Rosy-Finch
Black Swift
Golden Eagle
Gray-crowned Rosy-Finch
Peregrine Falcon
White-tailed Ptarmigan

Mammals
Dwarf Shrew
Fisher
Grizzly Bear
Little Brown Myotis
Wolverine

CONIFER-DOMINATED FOREST AND WOODLAND (MESIC-WET) **3,827 miles^2**
Ecoregions: Idaho Batholith Northern Rockies **2.6% landcover**

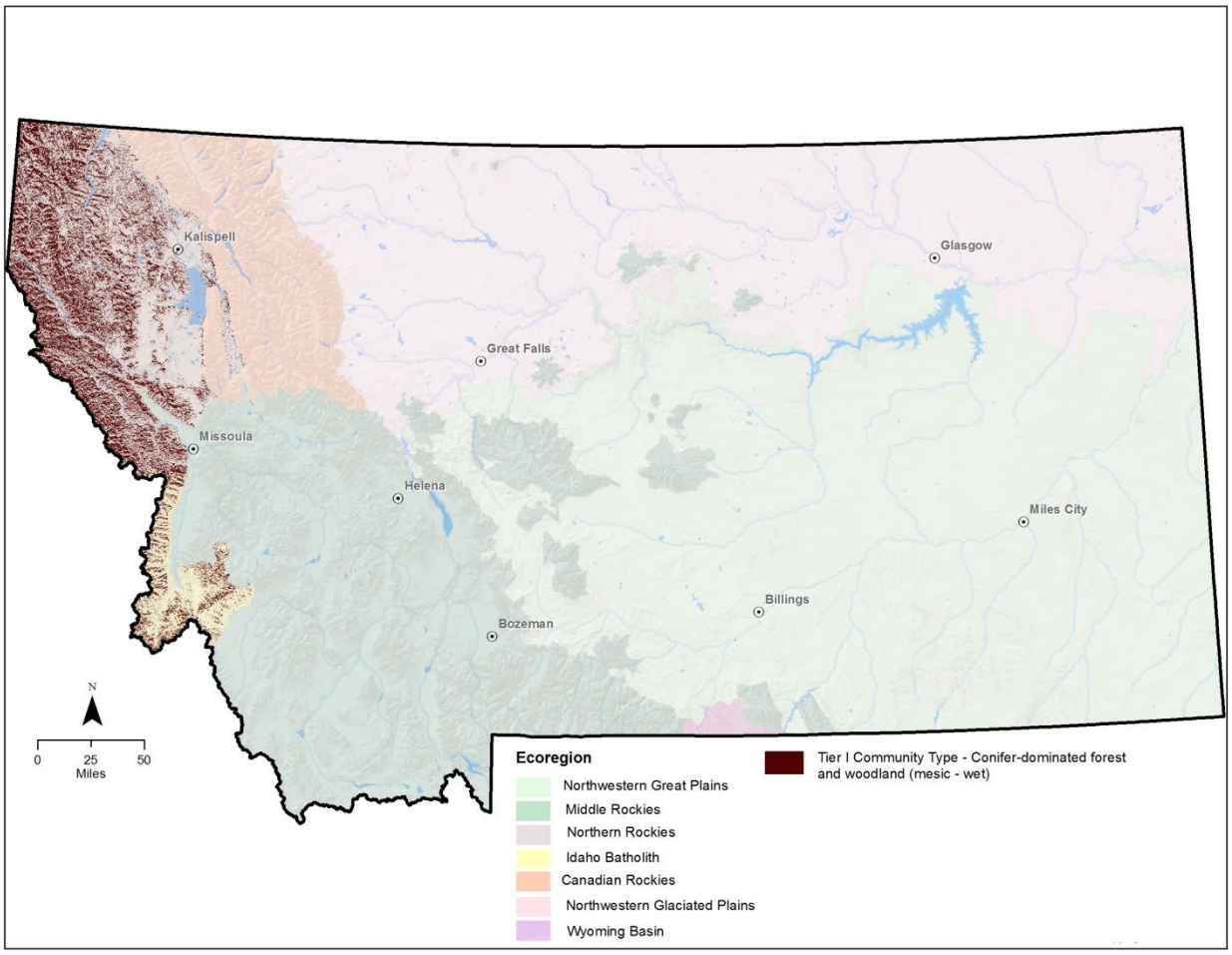

Figure 13. Distribution of Tier I Conifer-dominated Forest and Woodland (mesic-wet)

The mixed conifer forest dominated by western hemlock (*Tsuga heterophylla*), western red cedar (*Thuja plicata*), and grand fir (*Abies grandis*) are found at elevations in Montana from 2,000-5,200 feet. The Engelmann spruce (*Picea engelmannii*) and subalpine fir (*Abies lasiocarpa*) dominated forest is found from 2,900-8,800 feet.

In the past, this community type was a priority for timber production in northwestern Montana. Large, old stumps from past harvest activities provide evidence that large-bowled trees used to be much more abundant on the landscape than they are today.

Associated SGCN

Amphibians
Coeur d'Alene Salamander
Idaho Giant Salamander
Western Toad

Birds
Black-backed Woodpecker
Boreal Chickadee
Brown Creeper
Cassin's Finch
Clark's Nutcracker
Evening Grosbeak
Flammulated Owl
Great Gray Owl
Northern Goshawk
Northern Hawk Owl
Pileated Woodpecker
Varied Thrush

Mammals
Canada Lynx
Fisher
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Pygmy Shrew
Townsend's Big-eared Bat
Wolverine

Reptiles
Northern Alligator Lizard

CONIFER-DOMINATED FOREST AND WOODLAND (XERIC-MESIC) **26,257 miles^2**

Ecoregions: Canadian Rockies, Idaho Batholith, Middle Rockies, Northern Rockies, Northwestern Great Plains, Wyoming Basin **17.9% landcover**

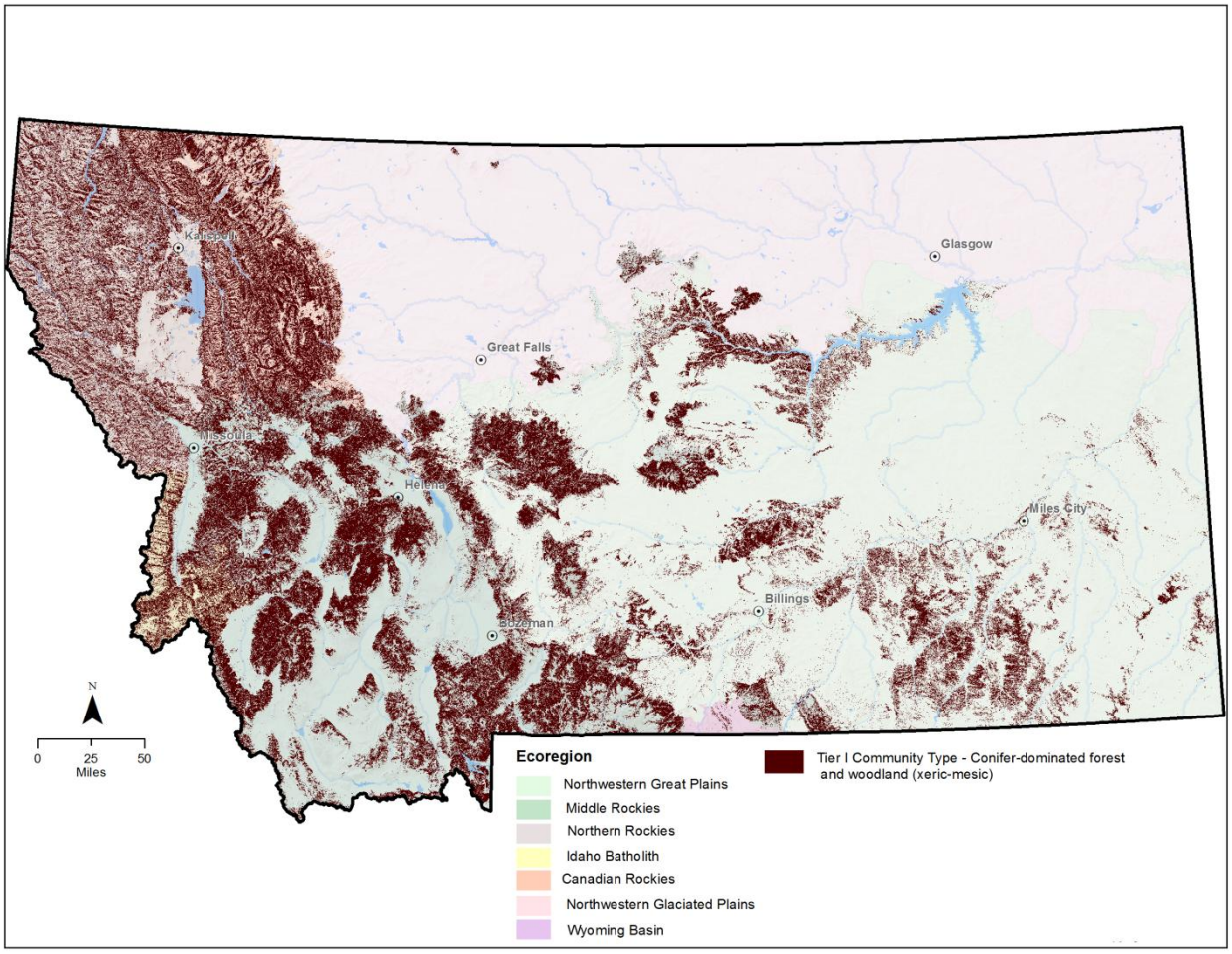

Figure 14. Distribution of Tier I Conifer-dominated Forest and Woodland (xeric-mesic)

This community type is found throughout Montana in elevations ranging from 2,900-9,500 feet. It is a dry tolerant community type that experiences long precipitation-free periods during the summer.

The dominant conifer species vary based on elevation and soil type and can be lodgepole pine (*Pinus contorta*); Engelmann spruce (*Picea engelmannii*) and subalpine fir (*Abies lasiocarpa*); whitebark pine (*Pinus albicaulis*); ponderosa pine (*Pinus ponderosa*); Douglas-fir (*Pseudotsuga menziesii*); limber pine (*Pinus flexilis*), western larch (*Larix occidentalis*), western white pine (*Pinus monticola*), and rocky mountain juniper (*Juniperus scopulorum*).

According to the Department of Natural Resources and Conservation's (DNRC) forest assessment (DNRC 2010), the impacts of fire and insects are due to "an uncharacteristic increase in forest density within ponderosa pine and Douglas fir forests." In western Montana, Douglas fir

has replaced ponderosa pine in 25-40% of the area, and western white pine has been reduced by 95% due to disease introductions and the mountain pine beetle. Lack of fire or other ground disturbance has reduced western larch by 40% (DNRC 2010).

Fire and insects drive this community type more than any other factors. Prescribed fires can be used to maintain this community in the absence of natural fires.

Associated SGCN

Amphibians
Idaho Giant Salamander
Plains Spadefoot
Western Toad

Birds
Black-backed Woodpecker
Black-billed Cuckoo
Blue-gray Gnatcatcher
Boreal Chickadee
Brewer's Sparrow
Brown Creeper
Cassin's Finch
Clark's Nutcracker
Evening Grosbeak
Ferruginous Hawk
Flammulated Owl
Golden Eagle
Great Gray Owl
Green-tailed Towhee
Lewis's Woodpecker
Loggerhead Shrike
Northern Goshawk
Northern Hawk Owl
Peregrine Falcon
Pileated Woodpecker
Pinyon Jay
Red-headed Woodpecker
Sharp-tailed Grouse
Varied Thrush
White-tailed Ptarmigan

Mammals
Bison
Canada Lynx
Fisher
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Pallid Bat
Preble's Shrew
Pygmy Shrew
Spotted Bat
Townsend's Big-eared Bat
Wolverine

Reptiles
Greater Short-horned Lizard
Milksnake
Northern Alligator Lizard
Western Hog-nosed Snake
Western Skink

DECIDUOUS DOMINATED FOREST AND WOODLAND **1,525 miles^2**

Ecoregions: Idaho Batholith, Middle Rockies, Northwestern Glaciated Plains, Northwestern Great Plains **1.0% landcover**

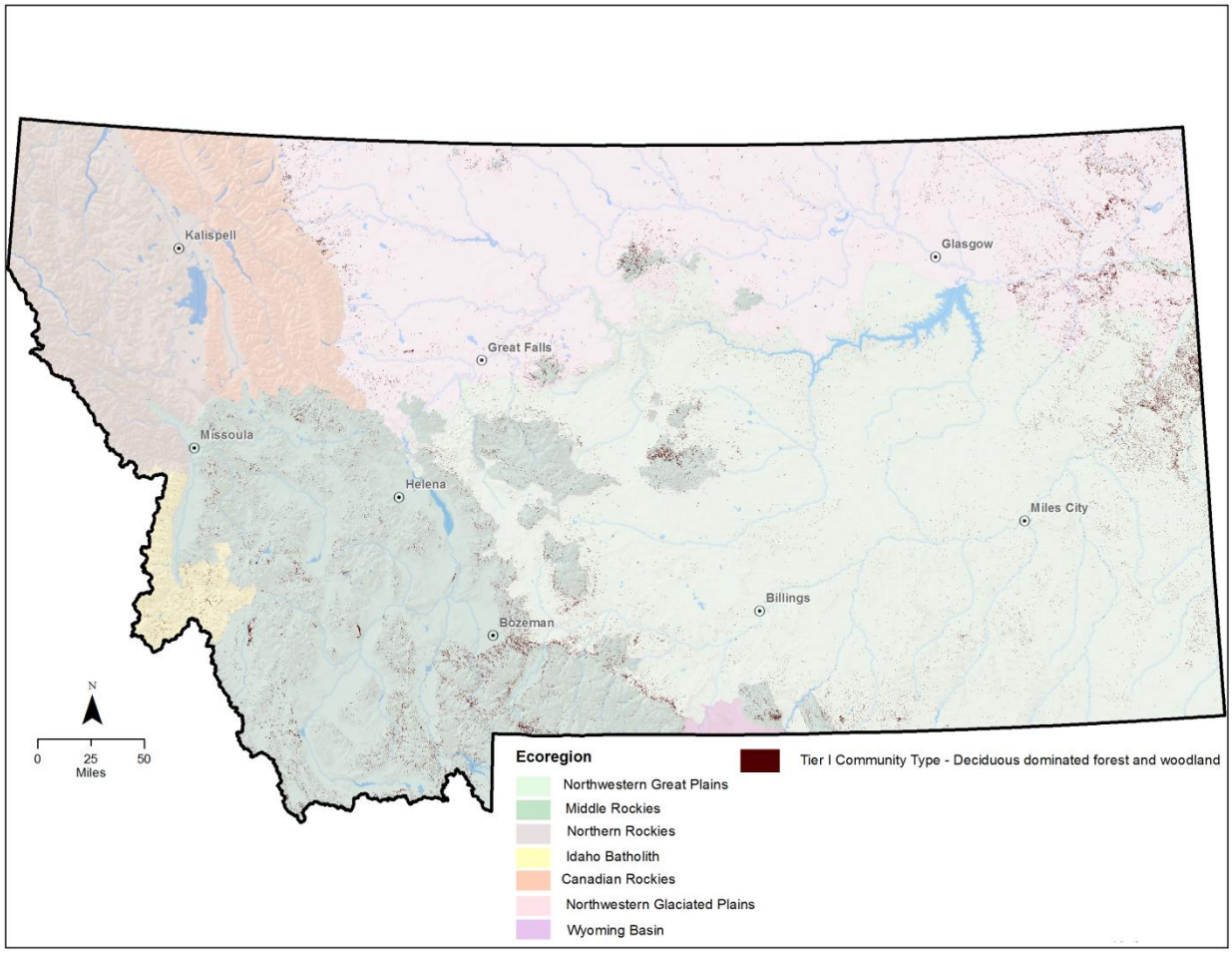

Figure 15. Distribution of Tier I Deciduous Dominated Forest and Woodland

This community type is associated with a relatively long growing season but has a cold winter with deep snow. It can be found in Montana at elevations between 3,500-9,000 feet.

The lower elevation woodlands, mostly found in the Northwestern Great Plains and Northwestern Glaciated Plains Ecoregions, are dominated by green ash (*Fraxinus pennsylvanicus*) and chokecherry (*Prunus virginiana*) and are associated with intermittent or ephemeral streams. These woody draws are very important to wildlife and domestic animals. However, this high use leads to trampling and ultimately conversion to shrubs. Alternate shade, water, and forage for cattle can help protect these draws for wildlife.

The mid and high elevation dominant species are curl-leaf mountain mahogany (*Cercocarpus ledifolius*) and quaking aspen (*Populus tremuloides*). Fire, grazing, and forestry practices have the greatest impact on this community type.

Associated SGCN

Amphibians
Plains Spadefoot
Western Toad

Birds
Alder Flycatcher
Black-billed Cuckoo
Cassin's Finch
Clark's Nutcracker
Evening Grosbeak
Ferruginous Hawk
Golden Eagle
Great Gray Owl
Green-tailed Towhee
Loggerhead Shrike
Northern Hawk Owl
Pinyon Jay
Red-headed Woodpecker
Sage Thrasher
Sharp-tailed Grouse
Spotted Bat
Veery
Yellow-billed Cuckoo

Mammals
Fisher
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Pallid Bat
Preble's Shrew
Pygmy Shrew
Townsend's Big-eared Bat

Reptiles
Milksnake
Smooth Greensnake

DECIDUOUS SHRUBLAND **759 miles^2**

Ecoregions: Canadian Rockies Northern Rockies **0.5% landcover**
Idaho Batholith

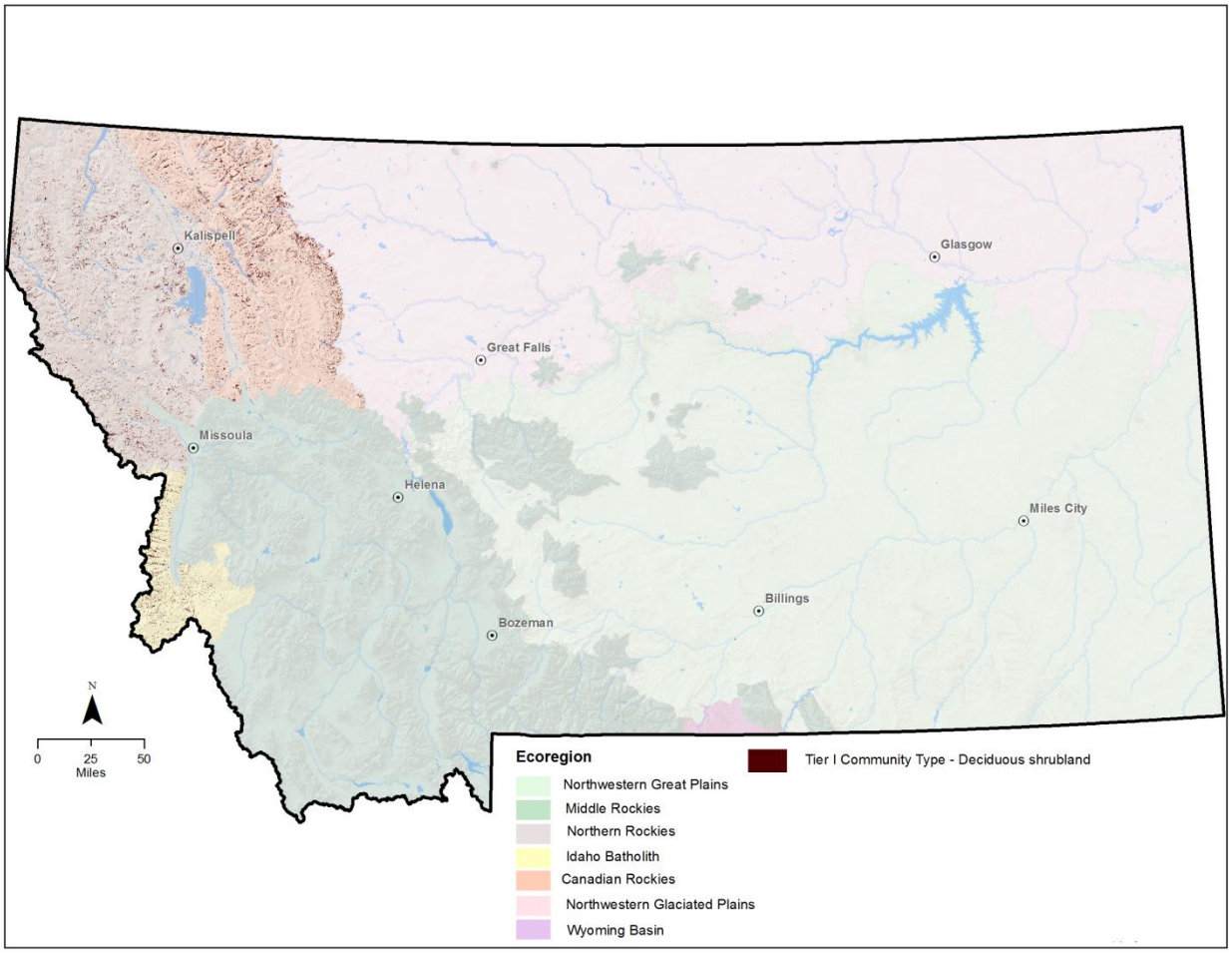

Figure 16. Distribution of Tier I Deciduous Shrubland

This community type is found throughout Montana at elevations ranging from 2,200-8,800 feet. Shrub cover is generally 30-100%. It occurs from foothills below treeline to high alpine areas. The most common dominant shrubs include ninebark (*Physocarpus malvaceus*), bittercherry (*Prunus emarginata*), common chokecherry (*Prunus virginiana*), rose (*Rosa* spp.), smooth sumac (*Rhus glabra*), Rocky Mountain maple (*Acer glabrum*), serviceberry (*Amelanchier alnifolia*), oceanspray (*Holodiscus discolor*), rusty leaf menziesia (*Menziesia ferruginea*), black twinberry (*Lonicera involucrata*), alder buckthorn (*Rhamnus alnifolia*), prickly currant (*Ribes lacustre*), thimbleberry (*Rubus parviflorus*), sitka alder (*Alnus viridis*), Cascade mountain ash (*Sorbus scopulina*), Sitka mountain ash (*Sorbus sitchensis*), and thinleaf huckleberry (*Vaccinium membranaceum*).

Fire and grazing typically drive this community type. In the absence of natural fire, prescribed burns can be used to maintain this system, though caution should be taken as some species are fire intolerant.

Associated SGCN

Amphibians
Western Toad

Birds
Baird's Sparrow
Clark's Nutcracker
Evening Grosbeak
Ferruginous Hawk
Golden Eagle
Gray-crowned Rosy-Finch
Green-tailed Towhee
Loggerhead Shrike
Northern Hawk Owl
Sharp-tailed Grouse
Varied Thrush
White-tailed Ptarmigan

Mammals
Bison
Canada Lynx
Dwarf Shrew
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Preble's Shrew
Pygmy Shrew
Spotted Bat
Wolverine

Reptiles
Greater Short-horned Lizard
Northern Alligator Lizard
Western Skink

LOWLAND/PRAIRIE GRASSLAND **30,724 miles^2**

Ecoregions: Northwestern Glaciated Plains Wyoming Basin **20.9% landcover**
Northwestern Great Plains

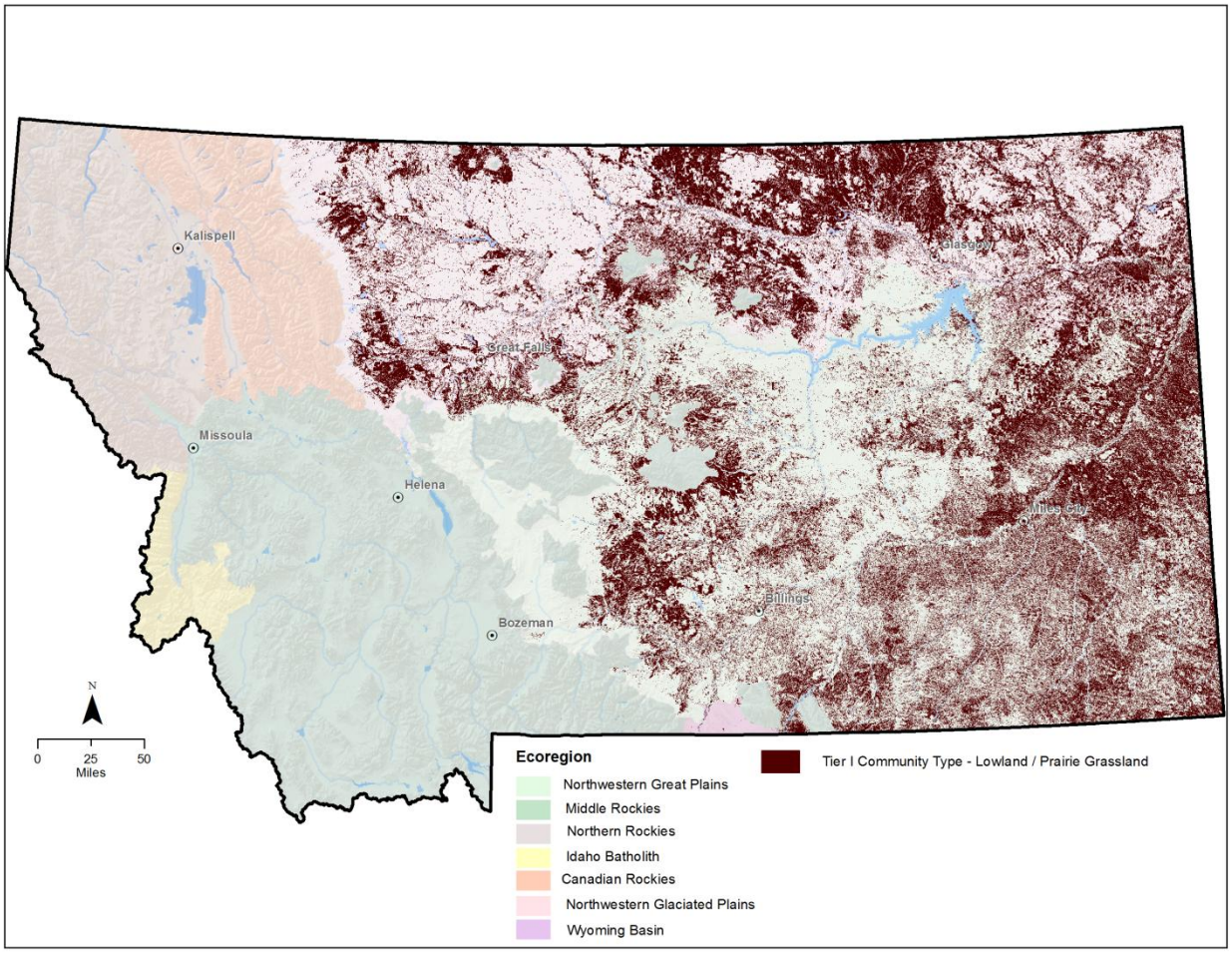

Figure 17. Distribution of Tier I Lowland/Prairie Grassland

This system covers much of the eastern two-thirds of Montana, occurring continuously for hundreds of square miles, interrupted only by wetland and riparian areas. Grasses typically comprise the greatest canopy cover and forb diversity is typically high. Wind erosion, fire, and grazing are major dynamic processes that can influence this system. Drought can also impact it, in general favoring the shortgrass component at the expense of the mid-height grasses. With intensive grazing, cool season exotics increase in dominance; rhizomatous species have been shown to markedly decrease species diversity. Previously cultivated acres that have been re-vegetated with non-native plants have been transformed into associations such as Kentucky bluegrass (*Poa pratensis*) and western wheatgrass *(Pascopyrum smithii)* or into pure crested wheatgrass (*Agropyron cristatum)* stands.

Historically, frequent indigenous anthropogenic fires and large numbers of migrating bison and other herbivores contributed to plant species and plant community diversity within this system. In the Northern Great Plains, pre-settlement fire frequency occurred at intervals ranging from

three to 20 years (Umbanhowar 1996). The elimination of bison, black-tailed prairie dogs, and frequent fire intervals disrupted plant community dynamics, leading to a decrease in plant community diversity. Typically, this community is tolerant of managed grazing practices, moderate-intensity fires, and fallowed wheat-cropping practices. Prolonged, extreme drought is a major threat to this system, reducing the density and cover of short grasses by as much as 80% and the bunchgrasses and native forbs to almost zero (Albertson 1937). During prolonged drought, native forbs are rapidly replaced by non-native invasive forbs. During the severe droughts of the 1930's and 1950's, basal area cover of grasses decreased from 80 to less than 10% under moderate grazing regimes in three to five years (Barbour 2000). In short, the dynamics of species changes in this system is a function of climate, but the magnitude of these changes is greatly influenced by the intensity of grazing and fire frequency. The distribution, species richness and productivity of plant species within this community are controlled primarily by environmental conditions, in particular the temporal and spatial distribution of soil moisture and topography. Another important aspect of this system is its susceptibility to wind erosion. Blowouts and sand draws can impact vegetation composition and succession within this system; fire and grazing constitute the other major disturbances. Overgrazing, fire, and trampling that leads to the removal of vegetation in areas susceptible to blowouts can either instigate a blowout or perpetuate blowouts occurring within the system.

Areas that have been disturbed by previous cultivation or overgrazing may support large numbers of invasive or non-native plant species. Control of these species can occur through managed grazing practices, chemicals, or biological mechanisms such as insects or fire. In the absence of fire and native grazers, regions of the mixed grass prairie may be susceptible to woody plant or cacti invasion. Controlled burning practices every four years can control plant expansion. Landowners looking to manage for wildlife may choose to burn less often than livestock managers, promoting availability of woody vegetation for wildlife species. Grazing should be managed to avoid instigation and perpetuation of blowouts and vegetation loss within this system. Prescribed fires can also be used to enhance, maintain, and restore this system.

Associated SGCN

Amphibians
Great Plains Toad
Plains Spadefoot

Birds
Baird's Sparrow
Bobolink
Burrowing Owl
Chestnut-collared Longspur
Ferruginous Hawk
Golden Eagle
Loggerhead Shrike
Long-billed Curlew
McCown's Longspur
Mountain Plover
Sharp-tailed Grouse
Sprague's Pipit

Mammals
Black-tailed Prairie Dog
Dwarf Shrew
Fringed Myotis
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Pallid Bat
Preble's Shrew
Spotted Bat
Swift Fox
Townsend's Big-eared Bat

Reptiles
Greater Short-horned Lizard
Milksnake
Western Hog-nosed Snake

MONTANE GRASSLAND **10,841 miles^2**

Ecoregions: Canadian Rockies, Idaho Batholith, Middle Rockies, Northern Rockies, Northwestern Glaciated Plains, Northwestern Great Plains **7.4% landcover**

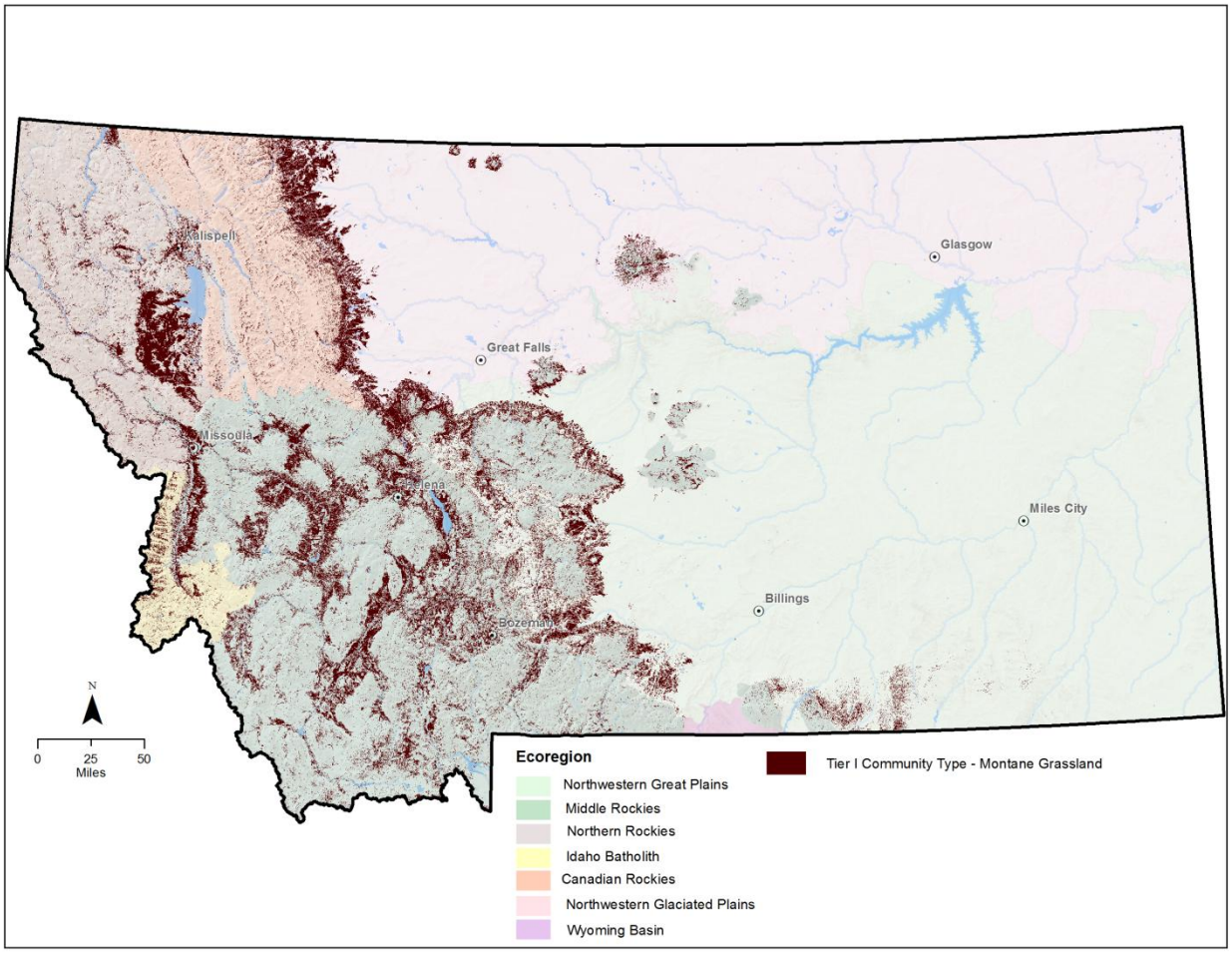

Figure 18. Distribution of Tier I Montane Grassland

This community type is found at elevations ranging from 1,800-8,800 feet in Montana. Below 5,400 feet, the grassland is generally dominated by rough fescue (*Festuca campestris*), Idaho fescue (*Festuca idahoensis*), or bluebunch wheatgrass (*Pseudoroegneria spicata*). Above this, the grasslands are dominated by a variety of grasses or forbs.

This system is susceptible to shrub encroachment and invasive weeds, especially if there is overgrazing and/or fire suppression. Prescribed burns and proper grazing management can help maintain this system.

Associated SGCN

Amphibians
Plains Spadefoot
Western Toad

Birds
Baird's Sparrow
Bobolink
Clark's Nutcracker
Ferruginous Hawk
Golden Eagle
Great Gray Owl
Green-tailed Towhee
Loggerhead Shrike
Long-billed Curlew
Northern Hawk Owl
Peregrine Falcon

Mammals
Bison
Dwarf Shrew
Fringed Myotis
Grizzly Bear
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Preble's Shrew
Pygmy Shrew
Townsend's Big-eared Bat
Wolverine

Reptiles
Greater Short-horned Lizard
Milksnake
Northern Alligator Lizard
Western Skink

SAGEBRUSH STEPPE & SAGEBRUSH-DOMINATED SHRUBLAND **24,789 miles^2**

Ecoregions: Middle Rockies, Northwestern Great Plains, Northwestern Glaciated Plains, Wyoming Basin **16.9% landcover**

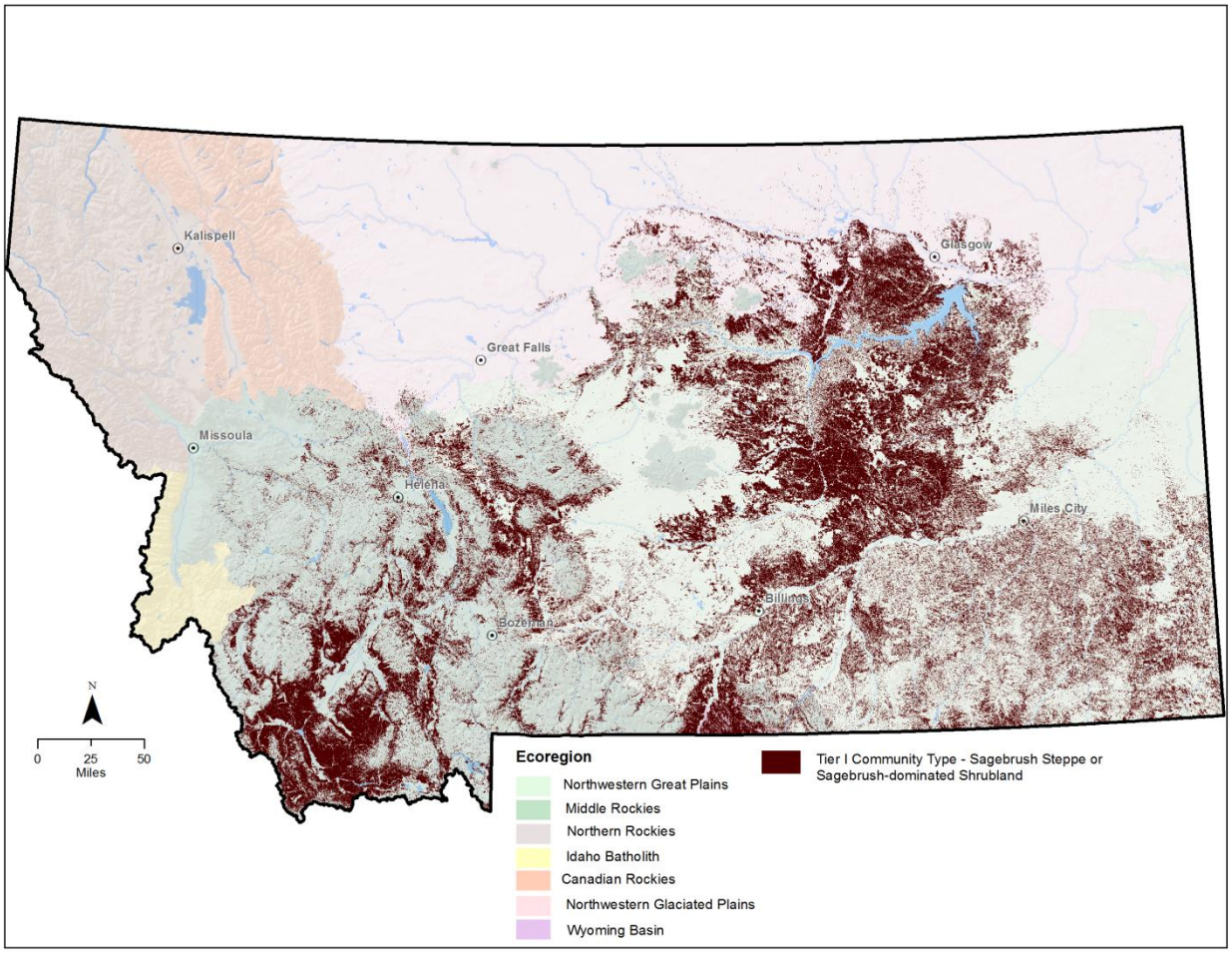

Figure 19. Distribution of Tier I Sagebrush Steppe & Sagebrush-dominated Shrubland

This community type is found is between 2,200-10,500 feet in Montana and is dominated by Wyoming big sagebrush (*Artemisia tridentata ssp. wyomingensis*), mountain big sagebrush (*A. t. ssp. vaseyana*), or black sage (*A. nova*). Shrub cover varies from 10-50%, and the cover of perennial grasses and forbs is generally over 25%.

In some areas, this steppe community is in a disclimax condition because of historic and current overgrazing. Proper grazing can be used to maintain the steppe character. As a general rule, fire is not a tool for maintaining sagebrush species because they are easily killed at all fire intensities and they only reproduce by seed. New research by Brady Allred (University of Montana) and Sam Fuhlendorf (Oklahoma State University) will be exploring this assumption. Cheatgrass invasion tends to be more likely in areas where perennial grasses and forbs are stressed or reduced; this can be tied to overgrazing. Fire also can be a catalyst for expanded cheatgrass invasion.

Associated SGCN

Amphibians
Great Plains Toad
Plains Spadefoot
Western Toad

Birds
Brewer's Sparrow
Burrowing Owl
Ferruginous Hawk
Golden Eagle
Greater Sage-Grouse
Green-tailed Towhee
Loggerhead Shrike
Mountain Plover
Sagebrush Sparrow
Sage Thrasher
Sharp-tailed Grouse

Mammals
Bison
Black-tailed Prairie Dog
Dwarf Shrew
Fringed Myotis
Great Basin Pocket Mouse
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Pallid Bat
Preble's Shrew
Pygmy Rabbit
Spotted Bat
Townsend's Big-eared Bat
White-tailed Prairie Dog

Reptiles
Greater Short-horned Lizard
Milksnake
Western Hog-nosed Snake

SCRUB AND DWARF SHRUBLAND **26 miles^2**
Ecoregion: Wyoming Basin **0.02% landcover**

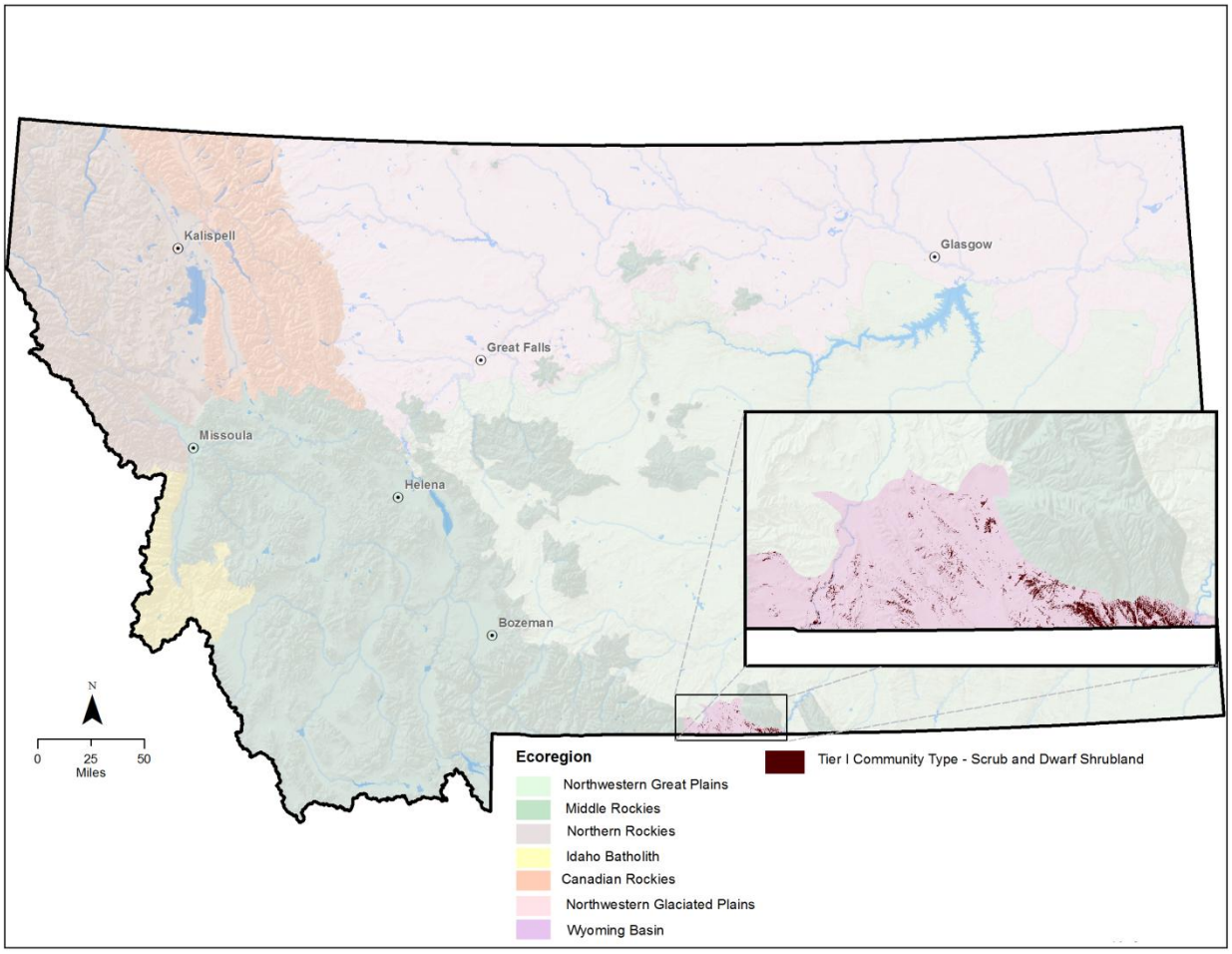

Figure 20. Distribution of Tier I Scrub and Dwarf Shrubland

This community type occurs on gentle slopes and rolling plains to the steep-facing badlands in south-central and south-eastern portions of the state. It is a shrub dominated community and forb cover is generally very low. This community type faces extreme climatic conditions, with warm to hot summers and freezing winters. The annual precipitation is generally 12 inches or less, and it normally occurs as spring rains and sometimes during late summer or fall.

Fire has been rare in this system due to the low plant cover. Excessive grazing, particularly by sheep, can significantly impact the cover of the principal shrub species, leading to an increase of cheatgrass and exotic annual forbs which results in the decline of the native perennial grasses in this system. Areas infested with cheatgrass cause the dynamics of this community type to change and increases the fire potential.

Associated SGCN

Amphibians
Plains Spadefoot

Birds
Brewer's Sparrow
Burrowing Owl
Chestnut-collared Longspur
Ferruginous Hawk
Golden Eagle
Greater Sage-Grouse
Loggerhead Shrike
Mountain Plover
Sagebrush Sparrow
Sharp-tailed Grouse

Mammals
Black-tailed Prairie Dog
Fringed Myotis
Hoary Bat
Little Brown Myotis
Merriam's Shrew
Pallid Bat
Preble's Shrew
Spotted Bat
Townsend's Big-eared Bat
White-tailed Prairie Dog

Reptiles
Greater Short-horned Lizard
Milksnake
Western Hog-nosed Snake

TERRESTRIAL COMMUNITY TYPE IMPACTS, THREATS, AND ACTIONS

Many of the terrestrial community types in Montana have similar threats, though the magnitude and urgency of those threats may be dissimilar. Likewise, the conservation actions addressing those threats may be different depending on the community type and the geographic area. Some threats can have far-reaching impacts across the entire state affecting all CTGCN and share the same mitigating actions. It is not implied, however, that the identified impacts and threats are *always* impacts and threats. They are only considered so if they negatively affect CTGCN or SGCN.

The following impacts, threats, and corresponding actions were identified by the technical teams, other experts, and/or were summarized from existing management plans or recovery plans. This list does not represent a brainstorming exercise where every action is listed. Rather, this list represents priority actions that have a better likelihood of mitigating and minimizing the associated impacts and threats. Therefore, the listed conservation actions may not represent all actions that should be implemented within a community type or Focal Area. The list of actions should be reviewed for each project to determine relevancy to the project goals, and other actions should be considered if they may benefit the Focal Area, CTGCN, and/or SGCN in question. In addition, not all listed actions are suitable for every community type or situation. Each area must be assessed separately to determine which actions are appropriate.

Broad actions that can address multiple threats and impacts are identified first, and grouped by AFWA's recommended categories to measure effectiveness (AFWA 2011). Actions addressing specific impacts and threats follow.

BROAD ACTIONS FOR TERRESTRIAL COMMUNITY TYPE IMPACTS AND THREATS

Collaboration and Outreach

- Incorporate BMPs when implementing actions outlined in this SWAP
- Actively participate with private landowners, watershed groups, NGOs, state and federal government agencies, local governments, tribes, land trusts, conservation districts, and other interested parties to: ensure work plans consider wildlife habitat needs during planning and implementation; ensure effective cooperation; work collaboratively; and to promote SGCN and habitat conservation while maintaining private land management objectives
- Encourage counties and communities to use FWP's *Fish and Wildlife Recommendations for Subdivision Development* (FWP 2012a)
- Educate the public and land managers about the high values of CTGCN and how to better manage these habitats in ways that balance their management objectives with the conservation actions outlined in this SWAP
- Through press releases and participation in educational programs and public meetings, disseminate information regarding actions, issues, and science involving terrestrial community types to foster advocacy for and promote CTGCN and SGCN

Habitat Protection

- Continue to utilize Habitat Montana (FWP 1994) and other funding sources to support opportunities to conserve high priority CTGCN through fee title acquisitions and conservation easements
- Work with willing landowners, agencies, and organizations to purchase land or acquire conservation easements that support SGCN to: provide access to resources, prevent further habitat fragmentation, and preserve natural habitat function
- Work with partners to provide large, connected habitat patches across the state that are resilient and adaptable to existing impacts and future threats

Planning and Review

- Assist in the review of land use proposals completed by land management agencies that may affect CTGCN and provide recommendations to minimize impacts
- Work with other agencies, organizations, and interested parties to promote habitat conservation and management to benefit SGCN
- Consider SGCN and their habitats during development of management plans for WMAs, Fishing Access Sites, and State Parks

SPECIFIC IMPACTS AND THREATS TO TERRESTRIAL COMMUNITY TYPES

Habitat Fragmentation (all Terrestrial Community Types)

- Housing/subdivision development
- Loss of connectivity
- Highway corridors
- Train and vehicle traffic
- Development of inholdings
- Sale of large timberlands into smaller tracts
- Powerline/utility corridors
- Alteration of large tracts of habitat (e.g., sodbusting, energy development)
- Fences
- Increased road density and road upgrading
- Bridge construction and enlargement

Actions:

- Encourage counties and communities to use FWP's *Fish and Wildlife Recommendations for Subdivision Development* (FWP 2012a)
- Review and comment on subdivision requests that have the potential to impact SGCN and CTGCN and make recommendations based on FWP's *Fish and Wildlife Recommendations for Subdivision Development* (FWP 2012a)
- Review and comment on energy development projects that have the potential to impact SGCN and CTGCN and make recommendations based on FWP's *Fish and Wildlife Recommendations for Oil and Gas Development in Montana* (In prep) and *Fish and Wildlife Recommendations for Wind Energy Development in Montana* (In prep)
- Work with landowners and land management agencies to limit activities that may further fragment the landscape and negatively impact connectivity between CTGCN; investigate and promote landowner incentives to keep large blocks of land intact
- Encourage conservation projects that improve or provide connectivity between CTGCN

- Prioritize conservation easements and acquisitions adjacent to current conservation investments in order to create contiguous protected habitat that provides habitat linkages across large landscapes
- Provide wildlife overpasses, underpasses, and wildlife mitigation fencing along major transportation corridors where feasible
- Manage road density at or below current levels; new roads and utility corridors should be constructed to have minimal to no impact on CTGCN and associated SGCN
- Follow recommendations in the planning guide for protecting Montana's wetlands and riparian areas (Ellis and Richard 2008)

Pollution/contamination of Resources (all Terrestrial Community Types)

- Coal, oil, gas, Coal Bed Methane, and bentonite exploration and extraction
- Mine contamination
- Urban runoff
- Superfund sites
- New hard rock mines

Actions:

- Review and comment on energy development projects that have the potential to impact SGCN and CTGCN and make recommendations based on FWP's *Fish and Wildlife Recommendations for Oil and Gas Development in Montana* (In prep)
- Offer technical assistance to other agencies engaged in remediation of abandoned mines to ensure cleanup protects fish and wildlife health
- Work with landowners and land management agencies to limit impacts of hard rock mining on CTGCN and SGCN
- Work with lead agencies to ensure impacts to fish and wildlife are identified at superfund sites
- Work with watershed groups to clean up nonpoint pollution that is negatively impacting SGCN

Land Management (all Terrestrial Community Types)

- Incompatible grazing practices
- Altered fire regime
- Conflicting management policies
- Wetland draining
- Loss of native vegetation (e.g., cottonwood, green ash, willow) and low regeneration
- Inefficient agricultural practices (e.g., dewatering, irrigation impacts, riparian buffer encroachment)
- Loss of riparian habitat via bank stabilization
- Peat mining

Actions:

- Work with landowners and land management agencies to implement BMPs for SGCN and to limit or modify incompatible activities that may be detrimental to CTGCN and associated SGCN
- Educate the public and land managers about the high values of components of CTGCN (e.g., snags, large "legacy" trees, burned forest) to SGCN and how to better manage these habitats

- Promote recruitment of aspen and cottonwood stands by building exclosures to protect young trees from overbrowsing
- Work with landowners and land management agencies to develop a sustainable grazing systems that will minimize impacts to CTGCN and SGCN and allow for regeneration of native vegetation
- Manage for a range of grazing intensity across a landscape to provide for a range of SGCN needs (e.g., intensive grazing for mountain plovers and less grazing for sharp-tailed grouse)
- Provide comments in regards to CTGCN and SGCN to the Bureau of Land Management (BLM) on Resource Management Plans (RMP), grazing allotments plans, and other habitat related management plans
- Manage road density at or below current levels; new roads should be constructed to have minimal to no impact on CTGCN and associated SGCN
- Encourage restoration of natural fire regime to CTGCN where appropriate or implement other management actions that mimic the ecological processes provided by fire
- Reestablish native vegetation where opportunities exist and work to control non-native, invasive species such as Russian olive in riparian areas; discourage the use of invasive species in shelterbelts that may spread seed to threaten native riparian communities
- Follow habitat manipulation guidelines set out in existing management plans, such as the *Greater Sage-Grouse Habitat Conservation Strategy* (Montana's Greater Sage-grouse Habitat Conservation Advisory Council 2014) when finalized
- Provide for a range of habitat age classes to sustain preferred habitats and a variety of SGCN over time
- Encourage and support habitat improvement projects and projects to restore degraded habitat within CTGCN
- Encourage and restore natural processes and flow regimes in regulated river systems, without causing agricultural or other private land impacts, to help sustain riparian communities and floodplain function
- Use vegetative restoration and other "soft" measures for controlling stream bank erosion
- Promote and implement water conservation measures in agricultural areas to minimize impacts of withdrawals on surface water habitats
- Avoid peat mining or other vegetation manipulation in wetlands
- Complete better mapping of Montana wetlands through completion of the National Wetland Inventory and associated ground-truthing; complete inventory of rare biota that are often associated with these habitats
- Follow recommendations in *A Strategic Framework for Wetland and Riparian Area Conservation and Restoration in Montana 2013–2017* (Montana Wetland Council 2013) which includes the overarching wetland goal of no overall net loss of the state's remaining wetland resource base (as of 1989) and an overall increase in the quality and quantity of wetlands in Montana

Wind Energy (all Terrestrial Community Types)

- Habitat fragmentation
- Direct mortality of species

Actions:

- Review and comment on energy development projects that have the potential to impact SGCN and CTGCN and make recommendations based on FWP's *Fish and Wildlife Recommendations for Wind Energy Development in Montana* (In prep)

Recreation (all Terrestrial Community Types)

- Motorized use
- Ski area expansion
- Illegal watercraft use
- Illegal Off-road Vehicle (ORV) use

Actions:

- Consider seasonal and temporal recreational closures of important SGCN breeding areas to minimize disturbance during sensitive time periods such as nesting and brood rearing
- Maintain public access roadways into public land to help keep the public on those roads and prevent damage from illegal ORV use
- Increase education and outreach to ORV community to help minimize impacts on SGCN
- Increase education and outreach to watercraft users to help minimize impacts on SGCN
- Educate and collaborate with NGOs, volunteers, and the public to minimize impacts of recreation on SGCN and CTGCN
- Work with land management agencies to ensure SGCN impacts are fully considered during recreational development on public lands
- Reroute or remove and reclaim roads and trails that are causing resource damage to wetlands and other CTGCN

Climate Change (all Terrestrial Community Types)

- Habitat alteration (e.g., temperature and precipitation changes)

Actions:

- Continue to evaluate current climate science models and recommended actions
- Collect baseline data in order to document shifting range limits (latitude and elevation) of SGCN and CTGCN

Land Use Change (Floodplain & Riparian, Lowland Prairie/Grassland, Montane Grassland, Sagebrush Steppe & Sagebrush-Dominated Shrubland, Scrub and Dwarf Shrubland)

- Conversion of native habitat to cropland agriculture
- Removal of a keystone species
- Loss of acres enrolled in the Conservation Reserve Program (CRP)

Actions:

- Work on Farm Bill policy to promote wildlife friendly provisions and to ensure Farm Bill programs consider important wildlife priorities and do not provide incentive for conversion of native grasslands

- Work with landowners and DNRC to promote CRP or CRP-like programs to minimize additional conversions to cultivation agriculture
- Promote policies that support the maintenance of native plant communities in both state and federal programs
- Establish or encourage habitat improvement projects to benefit SGCN
- Restore or rehabilitate degraded and/or disturbed sites back to a to a healthy native plant community
- Follow habitat manipulation guidelines set out in the *Greater Sage-Grouse Habitat Conservation Strategy* (Montana's Greater Sage-grouse Habitat Conservation Advisory Council 2014) when finalized
- Work with landowners and land management agencies to develop a plan for minimal control of prairie dogs and ground squirrels and/or use non-toxic methods of control to maintain healthy populations of prairie dogs and ground squirrels in priority areas
- Use oral plague vaccine, if proven effective, on prairie dog towns to maintain them on the landscape

Invasive Species (all Terrestrial Community Types except Alpine Grassland and Shrubland & Alpine Sparse or Barren)

- Aquatic Nuisance Species
- Noxious weeds
- Disease outbreaks
- Insect infestations
- Conifer encroachment

Actions:

- To avoid spread of ANS, follow guidance in *Montana's Aquatic Nuisance Species Management Plan* (Montana ANS Technical Committee 2002) and updates or revisions to the plan
- Implement and promote measures to prevent the spread of chytrid fungus (Maxell et al. 2004), whirling disease, and other waterborne diseases during research, monitoring, management, or recreational activities
- Expand educational efforts to help prevent the spread of invasive animal species
- Remove and/or restrict the spread and distribution of invasive animals that harm desired CTGCN and SGCN
- Work collaboratively with landowners, land management agencies, NGOs, interested parties, and county weed supervisors to develop landscape level approaches to weed management
- Implement invasive plant species control; mechanical, biological, and chemical tools (site specific) should be selected to control invasive plant species
- Remove detrimental exotic species such as Russian olive, salt cedar, Norway maple, and other exotic plants from shelterbelts associated with riparian areas, wetlands, and woody draws
- After wildland fires, monitor sites for noxious weeds and control as needed
- Reseed cheatgrass dominated land with native grasses and forbs
- Support research efforts on selective control for cheatgrass
- When appropriate, control conifer invasion where excessive encroachment threatens CTGCN (e.g., aspen stands, grasslands)